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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/509,638	11/22/2004	Koji Ogata	F-8407	4296

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EXAMINER

KERNS, KEVIN P

ART UNIT PAPER NUMBER

1725

DATE MAILED: 04/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/509,638

Applicant(s)

OGATA, KOJI

Examiner

Kevin P. Kerns

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2004 and 22 November 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 9/29/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The abstract of the disclosure is objected to because "Disclosed is a" should be replaced with "A" in the 1st line. Correction is required. See MPEP § 608.01(b).
2. The disclosure is objected to because of the following informalities: on page 2, 1st line, it is believed that the term "clinker" is an error in translation. On page 4, 16th line, it is believed that "splaying" should be changed to "spraying". On page 8, 4th line, it is unclear what is meant by the term "FC". Corrections and/or clarifications are required for these and other errors that occur throughout the specification.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regard to claim 1, this claim is generally written in narrative format, rendering the claim indefinite. This "bonding structure" claim should be written to distinctly set forth positive, interrelated structural limitations.

Claim 2 recites the limitation "said adjustment". There is insufficient antecedent basis for this limitation in the claim.

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With regard to claim 2, it is unclear what is meant by a "filled amount" of said adhesive.

With regard to claim 4, it is unclear how both "alumina" and "aluminum" would comprise a composition in the adhesive, and it is believed that the phrases "one or more substances including" and "and/or aluminum" should be deleted from the last two lines of the claim.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1 and 2 insofar as definite (in view of the 35 USC 112, 2nd paragraph rejections) are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 8-57601 in view of JP 62-24846.

JP 8-57601 discloses an immersion nozzle for continuous casting, in which the nozzle includes a bonding structure for a refractory sleeve (cylindrical inner hole body 3) attached to the inside of the nozzle body 1, with the sleeve containing 25% by weight of CaO (see Table 1), such that the bonding structure is a joint zone 4 (between inner hole body 3 and hollow nozzle body 1) to be filled with a refractory material comprising an adhesive such as mortar, which is a mixture of a refractory aggregate, a solvent, and a

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binder, such that the mixture (aggregate, solvent, and binder) would be readily modified by one of ordinary skill in the art to obtain desired properties, including porosity, of the refractory adhesive (abstract; paragraphs [0018]-[0032] of Japanese text; and Figures 1-6). JP 8-57601 does not specifically disclose an adhesive of 15-90% porosity when dried in the joint zone.

However, JP 62-24846 discloses a nozzle for continuous casting, in which the nozzle includes an outer layer 1 (nozzle body) and an inner wall refractory layer 3 (adhesive cylindrical sleeve) containing porous CaO of about 60% porosity when dried in the joint zone, such that the 60% porosity CaO layer is advantageous for improving heat resistance while absorbing alumina to prevent clogging of the nozzle, thus improving quality of steel to be cast (abstract; and Figures 1-6).

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify the continuous casting immersion nozzle disclosed by JP 8-57601, by using the porous CaO of about 60% porosity when dried in the joint zone, as taught by JP 62-24846, in order to improve heat resistance while absorbing alumina to prevent clogging of the nozzle, thus improving quality of steel to be cast (JP 62-24846; abstract).

7. Claims 3 and 4 insofar as definite (in view of the 35 USC 112, 2nd paragraph rejections) are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 8-57601 in view of JP 62-24846, as applied to claims 1 and 2 above, and further in view of JP 8-283074.

JP 8-57601 (in view of JP 62-24846) disclose and/or suggest the features of claims 1 and 2. Neither JP 8-57601 nor JP 62-24846 specifically discloses a primary refractory aggregate containing MgO as a primary component (70% by weight or more) having a particle size of 0.5 mm or less, and 30% by weight or less of alumina.

However, JP 8-283074 discloses a refractory mortar used for lining (forming a joint in) a molten metal container, in which the refractory mortar includes 75-95% by weight magnesia (MgO) having 0.3 mm particle diameter, in addition to 5-25% by weight alumina, such that this composition is advantageous for obtaining a refractory mortar superior in corrosion resistance to reduce erosion in a joint zone (abstract; and paragraphs [0008]-[0022] of Japanese text).

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify the continuous casting immersion nozzle disclosed by JP 8-57601, by using the porous CaO of about 60% porosity when dried in the joint zone, as taught by JP 62-24846, in order to improve heat resistance while absorbing alumina to prevent clogging of the nozzle, thus improving quality of steel to be cast, and by further using the primary refractory aggregate containing MgO as a primary component (70% by weight or more) having a particle size of 0.5 mm or less, and 30% by weight or less of alumina, as disclosed by JP 8-283074, in order to obtain a refractory mortar superior in corrosion resistance to reduce erosion in a joint zone (JP 8-283074; abstract).

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Fishler, Ishino et al., Dunworth et al., Fishler et al., Muroi et al., JP 57-71860, JP 1-289549, and JP 3-81056 references are also cited in PTO-892.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Kevin P. Kerns whose telephone number is (571) 272-1178. The examiner can normally be reached on Monday-Friday from 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kevin P. Kerns *Kevin Kerns 4/19/06*
Primary Examiner
Art Unit 1725

KfK
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April 19, 2006